

An Essay

on  
Hæmoptysis;      Papered March 4  
1829

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of the University of  
Pennsylvania

as an  
Inaugural Thesis  
(For

The degree of Doctor of Medicine.

By  
Henry D. Dietrich,  
of  
Pennsylvania.

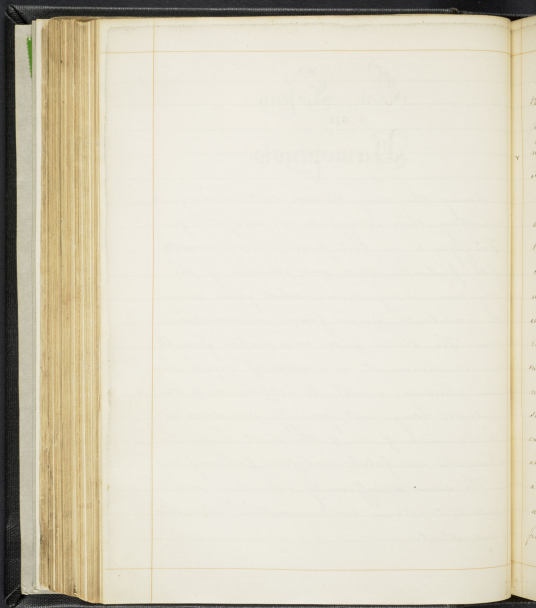
January 4<sup>th</sup> 1829

The City  
Hampshire, New York  
1874  
I have the honor to  
acknowledge the receipt  
of your letter of the  
10th inst. and in reply  
to inform you that  
the same has been  
forwarded to the  
proper authorities  
for their consideration.  
Very respectfully,  
J. H. [Signature]

An Essay  
on  
Hæmoptysis.

Among the many diseases, that we daily see committing their ravages on our susceptible frames, Hæmoptysis is one, that presents itself as worthy of the particular notice and attention of the physician; as any we can select from among the exorbitant number found in our Nosologies. The disease under consideration, from its very commencement, is a cause of much alarm and solicitude, as well to relatives, as to the patient; being most generally considered as the forerunner of one of the most lingering, insensible and fatal maladies—Consumption. ✓

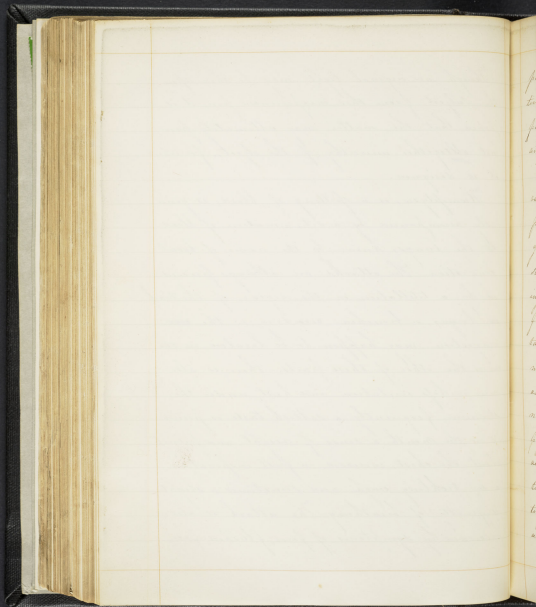
The disease is sufficiently interesting and important, to claim our unremitting researches and attention.





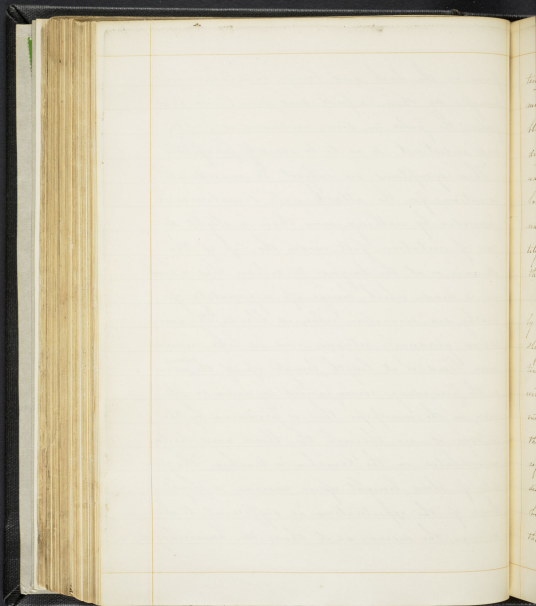
Though no original light may be shed upon the subject, from this inexperienced pen; it is hoped that the matter may ultimately prove not altogether unworthy of the object, for which it is designed.

<sup>See</sup> Haemoptosis, or a spitting of blood, is generally accompanied by a determination of blood to the lungs; known by the name of local congestion. The attacks are always preceded by a titillation in the region of the trachea, larynx or bronchia; according as the congestion may happen to be located in the one or the other of these parts; there is also more or less irritation and heat under the sternum, frequently a saltish taste is perceived in the mouth, a sense of weight and fulness about the chest, increased on full inspiration; a dry tickling cough, and sometimes a slight difficulty of breathing. The attack is also preceded by symptoms of fever, flushed face,



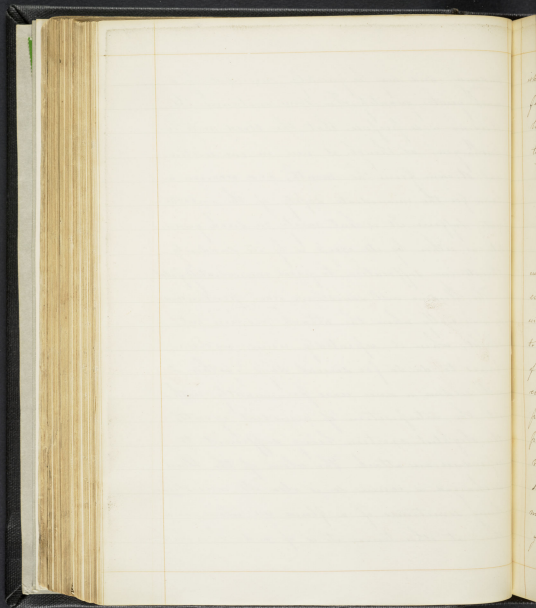
pains in the back and legs, lassitude, costiveness, dry skin, a full and sometimes hard pulse; the pulse in some instances is feeble and indistinct, so as to be scarcely perceptible.

These symptoms are subject to considerable variation; for the attack will sometimes be preceded by nothing more than a slight degree of irritation felt under the top of the sternum, or at the larynx; to relieve this a hacking is made, which brings up a quantity of frothy, and sometimes coloured blood. The irritation gradually returns, and in like manner more blood is at length brought up, of the <sup>same</sup> colour as the preceding; accompanied by more or less noise in the windpipe: this is produced by the passage of air through the blood and spittle accumulated in the bronchia or trachea. The quantity of blood brought up is various; a slight tinge of the expectoration is sufficient to characterize the disease, as it shows the hæmorrhagic



tendency; and may be quickly succeeded by a much greater quantity. In some instances the bleeding is so profuse, that the blood will be discharged, as though it were in one continual stream from the mouth, and occasion alarm for the immediate safety of the unfortunate sufferer. It is but rarely in such quantity as either by its excess, or by its suddenly threatening suffocation, to prove immediately fatal.

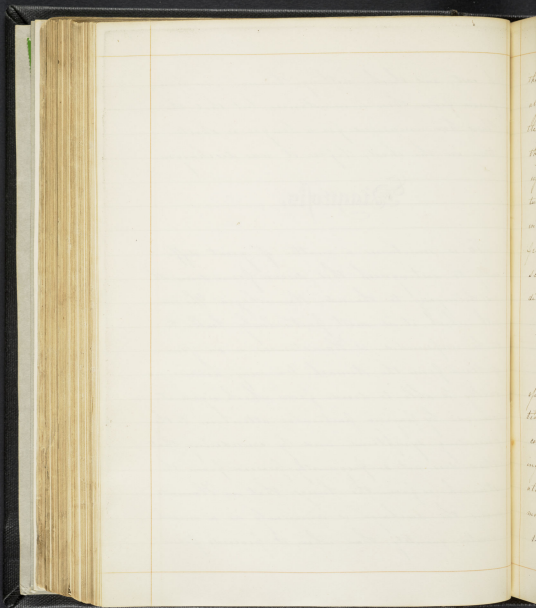
The bleeding will sometimes cease spontaneously, especially when the attack has been but slight; when it repeatedly recurs, and continues to do so for several days together, it will seldom or never cease permanently, without the interposition of remedial agents, the slightest exertion being sufficient to reproduce an attack. The colour of the blood discharged is various, so is also its consistency, being sometimes of a florid red colour, and then, at other times it is of a dark or black.



ish cast, and thick; nothing, however, can be inferred from these circumstances, but that the blood has remained for a longer or shorter time in the chest, before it was discharged.

## Diagnosis.

It is sometimes a matter of great difficulty to distinguish this disease from some others, belonging to the order *Hæmorrhagia*. The one with which it is most particularly liable to be confounded, is *Hæmatemesis*, or an issue of blood from the stomach. We may, however, generally be able to decide from which organ it proceeds, by paying particular attention to the preceding symptoms; and by considering that blood does not so frequently proceed from the stomach as from the lungs: that in *Hæmatemesis* the discharge is commonly in a much greater quantity, than when it proceeds from



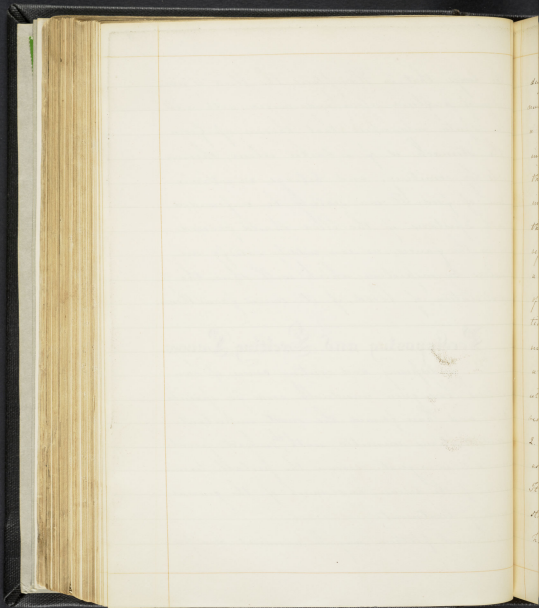


the lungs: that in *Hæmoptysis* the blood is usually of a florid colour and mixed with a little sputa only, while that thrown up from the stomach is of a darker colour, thrown up by vomiting, and betrays an intermixture of food. It can scarcely be confounded with *Epistaxis*; if the blood should proceed from the fauces, we can readily satisfy ourselves by inspection, which will show the distillation of blood, if it comes from thence.

### Predisposing and Exciting Causes

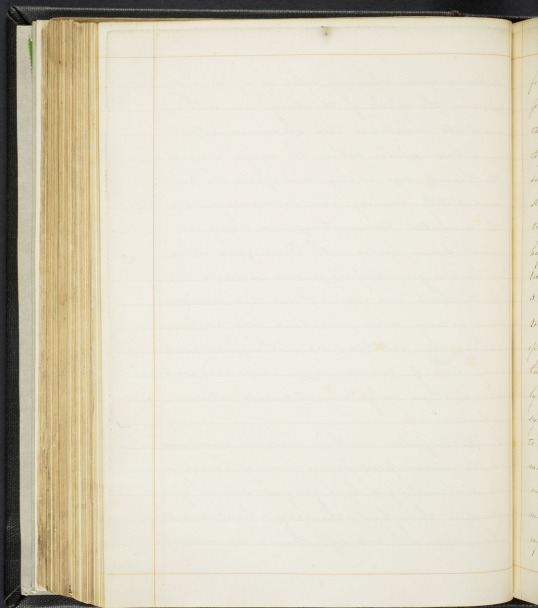
The predisposing and exciting causes of hæmoptysis have given considerable room for speculation, and have formed the most important considerations connected with <sup>the</sup> subject; pointing out in a great measure, the probable termination of the disease, and much of the general mode of treatment.

1. General plethora may be considered as a pre-



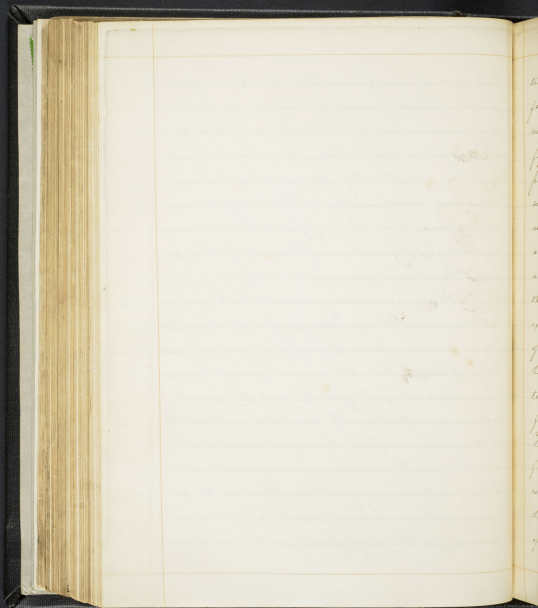
disposing cause; especially when we reflect how numerous the vessels of the lungs are, with what a delicate membrane they are covered; situated in a loose reticular texture; the vessels being of the largest size as they arise from the heart; immediately dividing and subdividing into the minutest terminations, how readily the vessels become loaded with blood, from either a local or general fulness and increased action of the heart and arteries. From these considerations we may easily understand, why an hæmorrhage may sometimes occur, though unquestionably it is of rare occurrence under this particular condition; unless connected with external violence.

2. The scrophulous diathesis may be considered as the second predisposing cause of hæmoptysis. It is characterized by a general delicacy of structure throughout the body - light and thin hair, a smooth and soft skin, a lax muscular

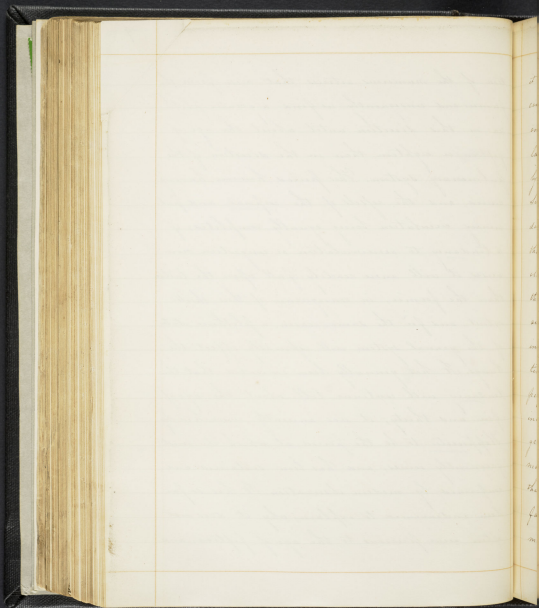


fine and slender form. That the blood vessels partake of this general delicacy of structure, there remains but little doubt and those of the lungs in particular, for we have already seen how delicate they are in their natural state, and consequently, we have every reason to presume them more disposed to a hæmorrhagic disposition, when influenced by this particular diathesis.

3. The third predisposing cause which we have to consider, is the period of life in which hæmoptoe usually occurs. Hæmoptoe generally never takes place until the animal frame has nearly acquired its full growth, and the vascular system is proportionally developed. Antecedently to this period we find the impetus and determination of blood, more expended in the aorta and its extreme ramifications, than in the pulmonary arteries; because more vital fluid is required for the progressive growth and elonga-

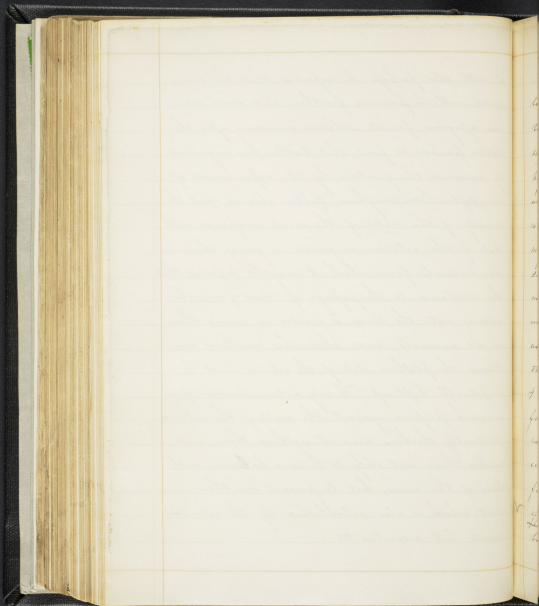


tion of the numerous arteries that arise from the  
 former and consequently we find a greater pleth-  
 ora in this direction until about the age of  
 fifteen or eighteen, than in the direction of the  
 pulmonary system. This period however, having  
 arrived, and the vessels of the cerebral and pul-  
 monary circulation being equally completed, if  
 a tendency to accumulation or congestion now  
 arises it will more readily fall upon the latter  
 than the former, in consequence of their shorter  
 extent, and for the same reason a plethoric state  
 of the general system will especially affect the  
 lungs. It has generally been conceived that this  
 tendency will continue till about the age of  
 five and thirty; it was anciently remarked by  
 Hippocrates to be the period at which it most  
 frequently occurs, and has been sustained and  
 confirmed by modern observation. It has so far  
 been endeavored to explain, why it does not  
 often occur previous to the age of fifteen; and



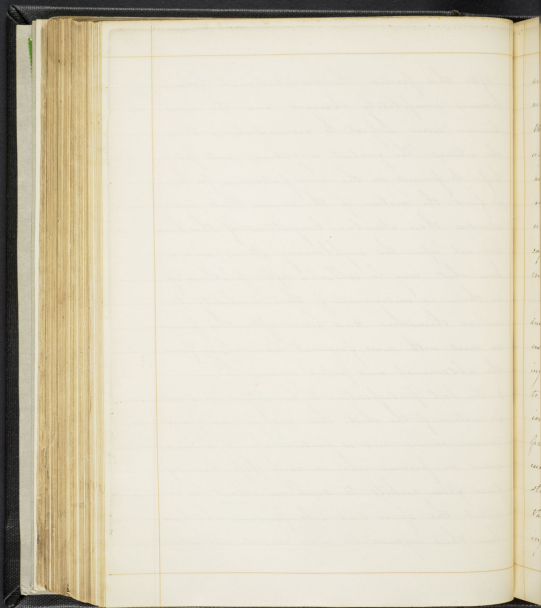


it will also perhaps be expected that the same course will be pursued further, and some reasons assigned for its seldom recurrence after the latter period: he finds that Cullen has ingeniously answered the question by the experiments of Sir Clifton Woulfe. Cullen observes that the density of the coats of the veins compared with that of the arteries, is greater in young than in old animals: from which it may be inferred that the resistance to the passage of blood from the arteries into the veins, is greater in young than in old animals: and, while this resistance continues, the plethoric state of the arteries must be perpetually kept up. The very action, however, of an increased pressure against the coats of the arteries gradually thickens and strengthens them, and makes them not only to be on a balance with those of the veins, but to prevail over them; a fact which is also established by the experiments just adduced to.



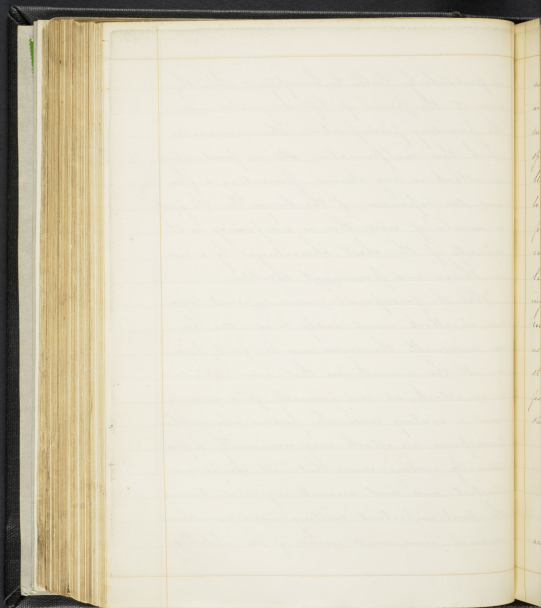
After this period the constitutional balance becomes completely changed, and the veins become more subject to accumulations than the arteries. The greatest congestions will perhaps be found in the veno portarum, for here we find the motion of the venous blood more retarded than elsewhere. Congestions of this kind may act upon the neighbouring arteries, and induce what may be called a reflex plethora upon them, in consequence of their inability to unload themselves. And hence after this period we meet with more frequent hæmorrhage from the abdominal and pelvic organs.

4. The last predisposition to hæmoptoe, is a malformation of the chest; this may proceed from various causes, and is particularly to be perceived in persons, who in early life have suffered from rickets to such an extent as to affect the spine and ribs, persons who have been thus injured to any considerable extent.



are particularly liable to hæmoptysis, when they arrive at the period of life designated under the preceding predisposition. The manner in which this malformation acts in producing an attack is very obvious—preventing a free and due expansion of the lungs. In the great number of cases, there is a deficiency in the capacity of the chest, characterized by a narrow thorax and prominent shoulders.

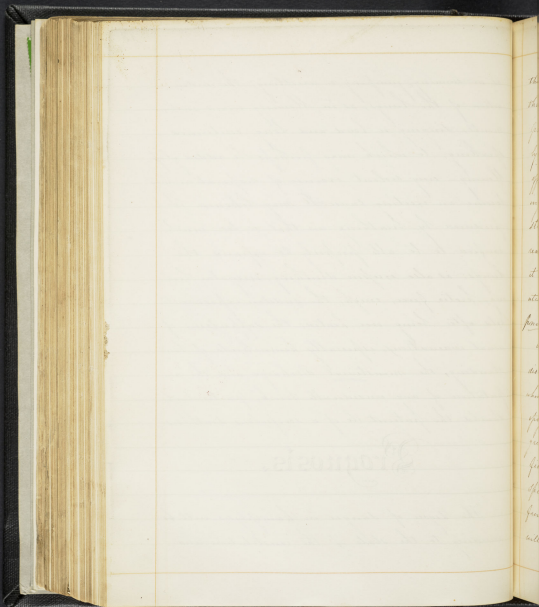
That the predisponent cause is sufficient to produce an attack cannot readily be admitted, however considerable the degree may be; for by tracing all the circumstances that occur antecedent to an attack, we can generally find an occasional or exciting cause. In persons who are thus predisposed an attack may occasionally be produced by exciting causes that will escape our strictest and most accurate inquiries. Among the most important exciting causes are external injuries: immoderate exercise of the whole body,



as in running, jumping or wrestling; the undue action of the lungs, as in blowing wind instruments, singing or loud and long continued speaking; to which may perhaps be added clasp blowing—very violent exercise of respiration may become an exciting cause. It may likewise be produced by breathing air that is too much confined to be able properly to expand the lungs; as also excessive drinking, irregular living, hectic fever, cough, the sudden exposure to cold after being over heated; the suppression of usual evacuations, especially hemorrhoids of long standing, the menstrual discharge and the amputation of any considerable limb, particularly should the patient be of a scrupulous diathesis.

## Prognosis,

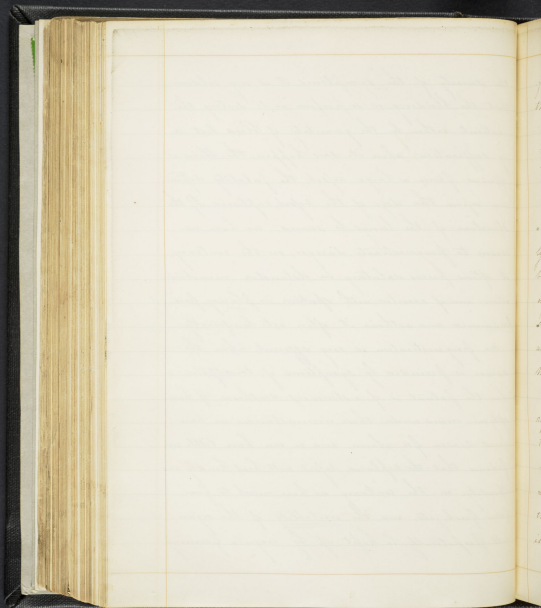
The degree of danger in hæmoptoe is will be according to the state of the constitution and





the severity of the symptoms, it is very seldom  
that the bleeding is so profuse as to destroy the  
patient either by the quantity of blood lost or  
by suffocation; when it does happen, the blood is  
effused from a large vessel, the fatality depend-  
ing upon the size of the vessel ruptured. If the  
structure of the lungs be sound, we have no  
reason to prognosticate danger, on the contrary,  
it often proves salutary in obstructed menstrua-  
tion, and if exercised with spasm in pleurisy, pne- ✓  
monia and asthma it often acts beneficially. ✓

Our prognostication is very different when the  
disease is preceded by symptoms of consumption or  
when the patient is of a sthenic diathesis; if hae-  
moptysis occurs under these circumstances we have  
great reason for alarm, and we can have little con-  
fidence that the ruptured vessel will heal kindly and  
speedily on the contrary we have much to fear  
from fresh jets, and the irreparability of the organ ✓  
will perpetually be kept up by coagula forming

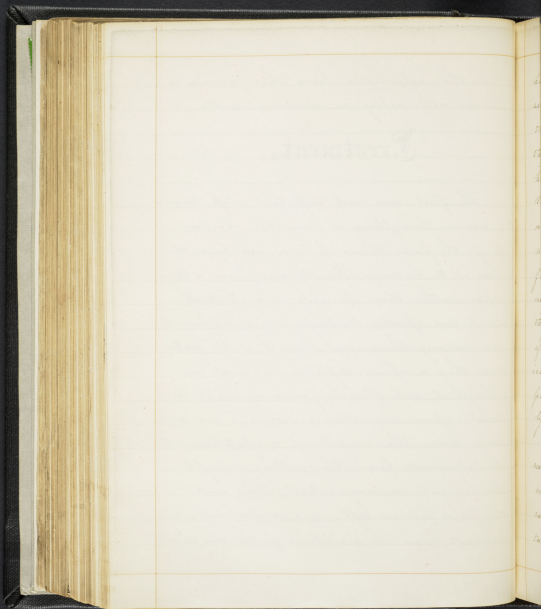


from the extravasated blood that remains in the air cells, acting as extraneous matter.

## Treatment,

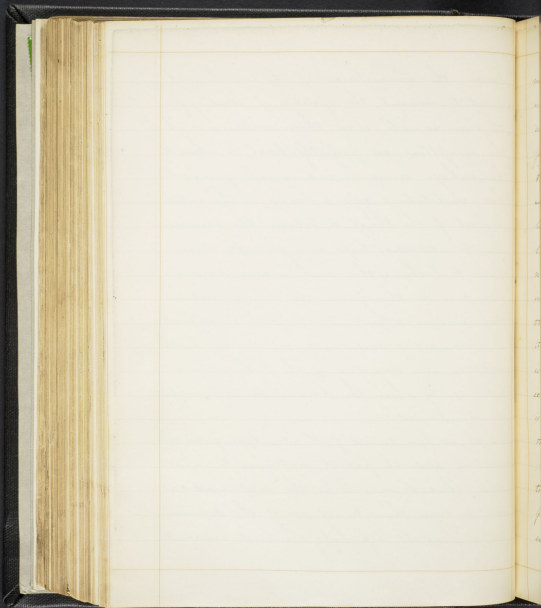
The first and most important step towards a cure in hæmoptysis, is venesection; particularly if the pulse should be tense and hard; the blood is to be drawn liberally and from a large orifice, rather than sparingly and repeatedly. Small and repeated bleedings proving inefficient, and reducing the general strength of the system more than a copious depletion, taken at once.

Though it will often be found expedient to repeat copious venesection a second or even a third time, the necessity of a repetition will be determined from the existing symptoms. In general, we may abstract blood until the pulse becomes soft - or a decided improvement is made upon the symptoms of the case; should



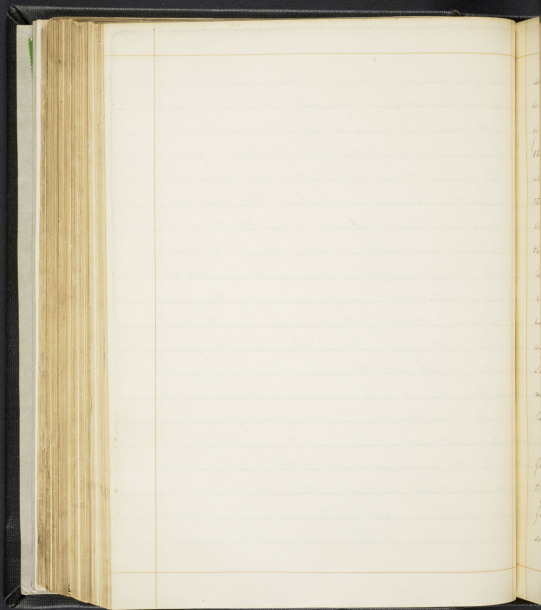
however the circumstances of the case be such, as not to warrant the repetition of bleeding from the arm, as well as in those instances in which the symptoms are perfectly local, or where the hæmorrhage arises in individuals of infected constitutions, cups or leeches to the anterior part of the thorax, or between the shoulders may be substituted. Cups may generally be preferred to leeches, as they make a more decided impression on the system; the degree of irritation they produce attracts to the part an afflux of blood, aiding considerably in diminishing the irritation and congestion of the pulmonary capillaries, by which the hæmorrhage is principally maintained.

After we have derived full advantage from a section, and the patient continues to expectorate blood, we may derive the most decided advantage from the internal use of the Superciliale of Linn. It is perhaps the most powerfull



medicine, and one that will seldom disappoint of  
 in our expectations, especially when combined  
 with opium; it may be combined in the pro-  
 portion of a gr. of the latter, to three or four of  
 the former, to be administered every hour or two  
 untill the bleeding is checked. The above com-  
 bination should always be resorted to in a hem-  
 orrhage and obstinate cases; though it should  
 not be indiscriminately used, as it is liable to  
 induce colic. We may also derive advantage from  
 the administration of Digitalis; the cases to which  
 it is most appropriate are those, where the pulse  
 is very quick and the disease somewhat of a chro-  
 nic character: it is to these circumstances that it  
 is best adapted, having a sedative influence on  
 the heart and arteries.

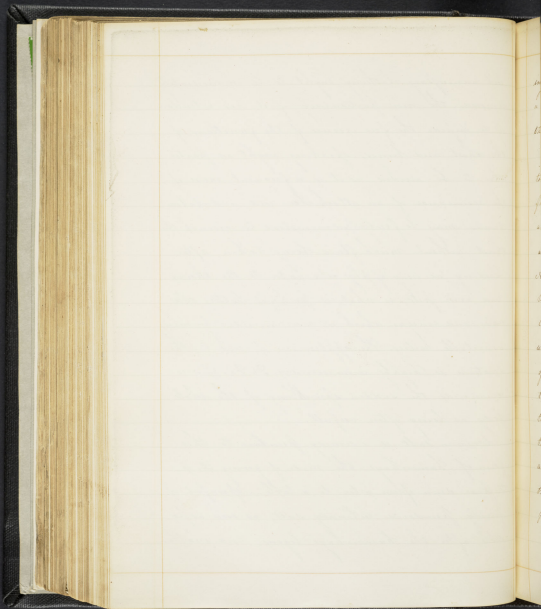
In the commencement of the disease, we ought  
 to admit cool air freely; the patient must be  
 placed in an erect position as much as possible;  
 every agitation of the mind must be avoided;





all unnecessary clothing ought to be immediately removed; the more particularly if it has a tendency to impede the free exercise of the functions of the chest and lungs; speaking ought in particular to be avoided, as it is a frequent cause of the recurrence of an attack. Ice-cold acidulated drinks may be freely administered to quench the thirst, without much fluid being taken. After bleeding we may apply cold water to the thorax and arm pits, or what is perhaps better, cold water and vinegar, which is recommended by many respectable writers. The application of cold to the lacteum is highly recommended. Dr Lassar recommends the sudden sprinkling of the whole body as being often useful.

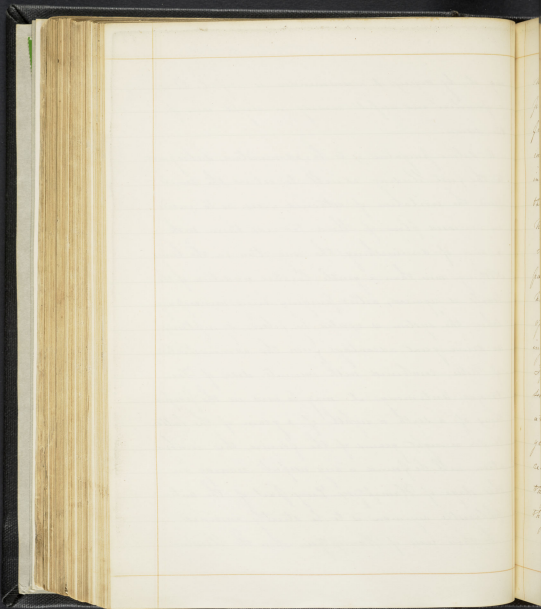
Common salt is a remedy peculiar to this form of hæmorrhage: the mode of giving it, is, to pour down from a tea to a table-spoonful of finely powdered culinary salt, as soon as possible after the hæmorrhage begins; and swallow



ing it by agree, it recommended as useful. It is a familiar and useful remedy in slight cases of the disease.

A saline purgative is to be administered, subsequent to the first bleeding, as well to relieve the bowels from the irritation of retained feces, as to invite an increased flow of blood towards them, with a view of diminishing the congestion in the lungs. Nothing more than a gentle laxative condition of the bowels is required, active purging being unnecessary. When the system is excited by febrile symptoms, we derive great advantage from the administration of Nitre, combined with minute doses of Tartarized Antimony; it may be used in the proportion of a sixth or eighth of a grain of the latter to six or eight grains of the former; this combination will be found a very useful remedy in this stage of Hemoptysis. Every part of the antiphlogistic regimen is to be strictly enjoined.

In those cases of Hemoptysis, where the bleeding

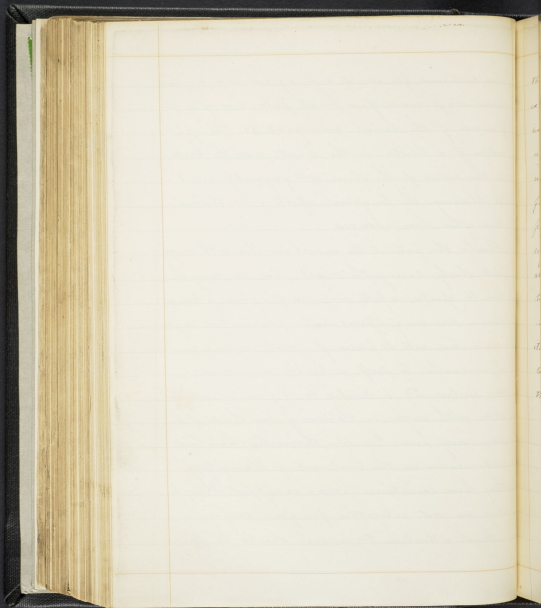


has continued for several days, a fixed and constant pain complained of, a small pulse, and after the free use of the Narcotics, sedatives &c. The application of a blister on the breast, or on the back in the course of the spine, will frequently arrest the bleeding; the beneficial effects from blisters have often been observed.

Should the patient be much troubled with cough particularly during the night, Opium may be had to spate; a pill composed of a grain or two of Opium and one of *Speacacantha* administered on going to bed, will be found of great advantage.

*Speacacantha*, by itself, is highly recommended by some writers. It is directed to be given in combination with sugar, in the dose of two thirds of a grain every hour. Emetics themselves have been recommended in the treatment of *Hæmoptoeis*, they have sometimes proved successful, though they are not altogether free from danger.

Great attention to regimen should be paid



throughout the disease. The patient ought to be allowed a little less than lemonade, or barley, rice or gum water, slightly acidulated, taken cold and in moderation. Every thing that has a tendency to increase the hæmorrhagic irritation ought to be carefully avoided. By degrees gentle exercise is to be permitted, such as sailing, or riding in an easy carriage, on smooth roads. The patient is carefully to abstain from all the circumstances, which have been enumerated under the head of exciting causes. The patient is to be nourished by a light digestible diet. By attention to these particulars, we will generally succeed in preventing a return of the disease.

